

Capsule 34

JULY-SEPT 1994

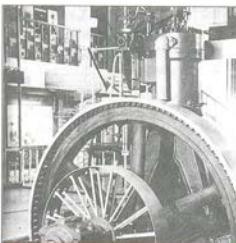
'Engines to Success and Fame'

It may be termed as a trip down memory lane. Importantly, it is a story of the spirit of inquiry accompanied by open-mindedness and experimentation wherever possible. There is a music box of 1816, a giant diesel engine of 1902 and also a steam-driven lorry which ran on the docks of Bombay in 1916. In all, there are 331 exhibits mostly participatory type in the new gallery named "Engine Hall" at the Visvesvaraya Industrial & Technological Museum, Bangalore. The gallery has a total area of 9500 sq. ft. in two interconnected floors.

The Engine Hall was inaugurated by the Minister of Higher Education, Govt of Karnataka, Shri S M Yahya on June 2, in the presence of the Chairman of the Indian Space Research Organisation Dr K Kasturirangan.

The exhibits in this Hall depict the saga of mechanisms, machines and devices that form the very foundation of modern technology. Visitors participation is the keynote in this hall which ensures the pleasure of discovery and learning through play and fun. Machines are indispensable in our daily life. There are machines of all kinds and sizes in existence today. Exhibits in the section 'The Mighty Five' describe the basics of machines lucidly.

Power that causes motion is motive power. The story of motive power in different forms has been



A view of the Engine Hall

described using various working exhibits and dioramas in this hall.

A giant 'Energy Ball' sets in motion the visitors' curiosity. It is a huge maze of circuitous path where 48 balls do acrobatics on the tracks explaining various basic principles of energy transformation.

In the section 'The World of Internal Combustion' a display of the internal combustion engines introduces to the intricate world of cylinders, pistons, valves and many other gadgets. One has ample opportunity to participate



Dr Saroj Ghose, DG, NCISM explaining the working of an exhibit to Shri S M Yahya, Minister of Higher Education, Govt of Karnataka. Dr K Kasturirangan, Chairman, ISRO looks on

with the exhibits and revel in the process of discovery.

In the 'Nostalgia' section one gets exposure to artefacts from old days evidences of the material culture, inventive genius and creativity of the human race.

The section 'How Things Work' answers more on hows and whys viz. why a hot air balloon goes up? how does a zipper work? how does brakes work? etc.

Up or down, across or around, far or near, we must measure. The ever increasing capability to measure more accurately and quickly knows no limit. In the section 'Mechanical Measuring Instruments' one can participate with various types of measuring instruments.

Finally, one comes to the area exclusively reserved for the would be engineers of the 21st century. In this section 'The Little Engineer' the children play with kits which kindle their interest and imagination and they learn through play and fun.

Added attractions include, (i) Demonstration of selected exhibits at regular intervals, (ii) Four audio-visual corners bring various facets of development in science and technology, (iii) 'The Science & Technology Update' corner portrays in brief the latest happenings in science and technology around the globe and (iv) Suitable facility to conduct short duration classes inside the hall.

Birla Industrial & Technological Museum, Calcutta in collaboration with United States Information Service organized a unique exhibition of the works of 14 Contemporary American artists who employed the latest glass and ceramic technology. The exhibition was inaugurated on April 15 by the eminent sculptor, Shri Chintamani Kar. Shri Kar in his inaugural speech expressed that the art pieces prepared by the American artists on extraordinary medium of clay & glass will definitely acquaint Indian audiences with the intimate nature of their art. The viewer is encouraged in participation in the stories which move from the personal to the universal. Many of them borrowed motifs from the art of historical and literary traditions. The exhibition remained open to the public till May 6, 1994.

BITM, Calcutta celebrated its 35th Anniversary Day on May 2. The Museum organized various educational programmes throughout the day for students and general public. Special demonstrations on various subjects on science were arranged for school students. Demonstration of Taramandal - inflatable planetarium and 'Science & Superstition' were added attractions of the Day. The

semi-final and final rounds of the year-long Quiz Competition for primary and secondary level students was also held on this occasion. A popular lecture was delivered by Prof Partha Ghosh, Academic Programme Coordinator, S N Bose National Centre for Basic Sciences, Calcutta on the topic "Who is afraid of quarks, leptons, gluons?"

One of the main features of the celebration was - inauguration of a human like 'Robot' which could perform several functions on command, with delicate electro-mechanical system. The 'Robot' was developed and fabricated in BITM's workshop and was presented before the public by Shri Achintya Ray, Minister for Primary & Secondary Education, Govt of West Bengal. The Minister appreciated the role of BITM in the field of science education in all levels and stressed the need for scientific awareness in rural areas. The celebration concluded with a prize-giving ceremony where attractive prizes, trophies and certificates were distributed by Prof Partha Ghosh to the winners of various competitive events organized by the Museum. About 3600 people, mostly students, visited the Museum on this Day.

Summer Vacation Hobby Camp was organised at BITM, Calcutta between May 23 and June 4, 1994 for students of class VIII-X in and around Calcutta. 4 camps - Physics, Chemistry, Life Science and Aeromodelling & Shipbuilding were attended by 155 students from 33 different schools. They completed 450 projects during the period. In Physics camp topics like Expansion of

solid, Laws of reflection of light, Effect of current on Magnet, Archimedes Principle. In Chemistry - Acid-base titration, Metabolism test, Test for protein, Test for sugar, etc were included. In Life Science - Study of leaf, Got's eye dissection, Study of stomata under microscope, Study of plant cells (onion) etc were included amongst the projects. In Aeromodelling & Shipbuilding students participated in preparation of different types of model aircrafts and ships - Chuck Glider, Catapult Glider, Speed Boat, Powered Ship etc.

Friends of the Indian museums and BITM, Calcutta organized a seminar 'In Search of our Heritage' at BITM on May 20. The Friends of Indian museums has taken initiative to create an awareness and a sense of responsibility amongst the general mass to protect and preserve the cultural treasures.

The seminar was inaugurated by Shri S Goswamy, Director, BITM and Prof Nisith Ranjan Ray, Director, Institute of Historical Studies, Calcutta presided over the inaugural function. Heads of small museums of West Bengal presented different aspects of our national treasures, temples, excavated sites, monuments etc with attractive illustrations. Prof Kalyan Kumar Dasgupta, Rani Bageswari Professor of Indian Art, Calcutta University was present as Chief Guest and emphasized on the care and communication of the art treasures and the need to make the common man conscious about the rich cultural heritage. He also said that it is the responsibility of such organisations



Large number of students visiting BITM on its 35th Anniversary Day

to take all efforts to preserve invaluable treasures for the posterity.

Prof B B Sarkar Birth Centenary was celebrated on May 21 by organizing one-day Symposium on "Frontiers of Physiological Research and Modern Technology" at BITM. Many eminent scientists participated in the symposium and paid tributes to the great scientist and teacher - Prof B B Sarkar who made remarkable contributions in physiological research and studies in the Calcutta University. Prof D K Sinha, Rashbehari Ghose Professor of Applied Mathematics, Calcutta University stressed that Physiology is an inter-disciplinary subject and modern physiological research could expand further by applying Mathematics in its research projects. Dr Sinha hoped that in our country Mathematical Physiology may open a new arena of research. Prof S P Mukherjee, Dept of Statistics, Calcutta University mentioned that more and more modern technology has been introduced in this particular subject and the subject has taken a new dimension to unravel many mysteries. Prof D K Basu, Secretary, Dept of Science & Technology, Govt of West Bengal, Prof P K Roy, Director, Bose Institute, Prof Dipankar Chakraborti, Director, School of Environmental Studies, Jadavpur University, Shri S Goswamy, Director, BITM also spoke on this occasion. The programme was organized by the Physiological Society of India in collaboration with BITM, Dept of Science & Technology, Govt of West Bengal and Indian Science Congress Association.

Visvesvaraya Industrial & Technological Museum, Bangalore collaborated with CEE, Southern Regional Cell, Bangalore and USIS, Madras to put up an exhibition entitled 'Travelling Information Centre on Environment'. The function was inaugurated by A N Yellappa Reddy, Special Secretary to Govt of Karnataka's Dept of Ecology and Environment.

A new museobus "Mandakini" with a new set of 24 exhibits on 'Man-the-Tool-Maker' has recently been launched by **National Science Centre, Delhi**. The maiden programme is being held in the districts of Solan, Shimla, Bilaspur, Hamirpur &



Kangra of Himachal Pradesh from June 9, 1994.

The exhibition 'Man-the-Tool-Maker' tells the fascinating story of how man from the prehistoric days conceived different tools and through ages of innovative use of these tools in different spheres of life, set a stage for the development of today's technological world. Almost everything used in today's world is made or processed by tools. In this exhibition one is acquainted with following exhibits - Man has a grip, Fire the first tool, Wheels move the World, Levers, Gears, Pulleys, Weaving, Water Lifting, House Building,



Medical Tools, Screws, Inclined Plane, Writing Tools, Printing & Engraving, Craft Tools, Pottery Tools, Tools for Signalling, Calculating Tools, Agricultural Tools, Drilling Tools, Grinding Tools, Cutting Tools, Measuring Tools & Space Age Tools.

On April 8, **Regional Science Centre, Lucknow** organised three day-long National level workshop on the National Children Science Congress (NCSC), 1994 in collaboration with National Council of Science & Technology Communication (NCSTC) Network. The theme of workshop was "Clean Up India". The workshop was inaugurated by Dr R S Tiwari, Director, B S I P, Lucknow, Dr Narendra Sehgal from NCSTC Network was also present.

During this workshop, about 100 resource person from different states participated. Aim of the workshop was to involve children to formulate, carry out and report their findings on the sub-themes of physical cleaning and waste management viz air, soil and water pollution illiteracy, poverty, drugs diseases and adulteration etc. Lectures were also organised during these days.

All India Radio, Lucknow has recorded a 30-minutes programme on RSC, Lucknow. The programme

(Continued on page 6)

Festival of India in Shanghai, China

From India to China. From one ancient civilisation to another



Chinese visitors enjoying "Fun Science" exhibits

went the Festival of Science. Held between June 29 and July 24, the Festival was organised by NCSM



Learning science by doing science

in cooperation with the Shanghai Culture Bureau to project the progress of development of science in India through the 5000 years, from pre-Indus Valley to the modern times.

The theme was perhaps best explained in the speech of China's

Assistant Minister of Culture Gao Yunjia, when he said "... the exhibition brings a message of goodwill from one great civilization to another in the east and paves



Ellipse made easy

the path of continued friendship and cooperation between the two countries, China and India ..."



Fun Science exhibits - a prime attraction for school students

The Chinese press rated the exhibition highly. The Shanghai Star, a leading daily, remarked, "... the history of S & T in India is

4500 years old. The show illustrates India's ancient achievements in mathematics, astronomy, medicine and surgery. It highlights ancient understandings of matter, energy and intelligence - the three entities that make up the universe ..."

To mention a few exhibits from The Festival : a replica of the rustless Iron Pillar of Mehrauli, Delhi; the zinc smelter of Jawar



Students participating in the exhibition

where zinc smelting was done even before Europe was aware of such a process; the replicas of Susruta's surgical instruments



Serious participation - full enjoyment

with which plastic surgery was done some 2000 years ago, etc.

While the ancient practices left the spectators spellbound, what roused their participatory interest was the 'Fun Science' section. Here visitors were treated to a range of hands-on participatory exhibits which instruct through interaction. Easy to operate, the



Solapith demonstration has been a prime attraction

INTERNATIONAL NEWS



Multi-national students' team visiting the exhibition

exhibits were thoroughly enjoyed by visitors by rolling a ball, pressing a switch, rotating a crank and lots more.

Visitors were surprised to find hands-on verification of theoretical concepts on gravity, rolling balls, pendulum, mathematics, fluidics, light, sound, magnetism, electricity, mirrors, etc; exhibits which apparently went against the laws

Festival was that four Indian master craftsmen demonstrated live the skills of silver filigree ornament making, marble inlaying, wood carving and solapith carving.

of nature, galvanized visitors into attention, making them aware of the laws within laws in this various world of nature.

Another highlight of the

The exhibition grouped in several sections in the 1000 square metre hall helped lift the veil of mystery about India among the Chinese people.



Learning science is fun

MISCELLANEOUS PROGRAMMES

Heritage of Ancient Indian Astronomy

IUCAA is planning to hold a workshop on Heritage of Ancient Indian Astronomy during Oct 31- Nov 4, 1994, in which practical work of modelling Gnomon, Sundial, Samrat Yantra, Water Clock, Sidhantic Models of Solar System, etc along with lectures on Vedic Astronomy, Sidhantic Astronomy, Panchang System, etc will be arranged. Interested persons including teachers from schools, colleges and universities may apply by sending a short resume with recommendation from their Head of the Department. The applications should reach the Coordinator, Core Programmes, IUCAA by September 15, 1994.

For more details, write to:
Inter-University Centre for Astronomy and Astrophysics, (An Autonomous Institution of the University Grants Commission), Post Bag 4, Ganeshkhind, Pune 411007, India
Ph. 0212 336415-17 (3 lines)
Fx. 0212 335760; Tlx. 0145 7658 GMRT IN
E-mail : root@iucaa.ernet.in

On April 4, Sardar Patel University, Gujarat observed the inauguration of a newly constructed University Museum Building, as part of the University's tribute to H M Patel. Dr Sarup Singh, Governor of Gujarat, presided over the function and unveiled the portrait of H M Patel. Dr I G Patel, eminent scholar and administrator, was the Chief Guest.

On May 16, a lecture on 'Solar Control of the Earth's Magnetic Field' by Prof G K Rangarajan,

Head, Observatories Division, Indian Inst of Geomagnetism, Bombay was organised by Birla Planetarium, Calcutta. Prof Probhas Raychaudhuri, Dept of Applied Mathematics, University of Calcutta was the Chief Guest.

On June 14, a programme on the occasion of the birth centenary of Prof S N Bose was organised jointly by Alliance Francaise de Calcutta and Indo-French Technical Association. Dr Dilip Malakar spoke on 'Prof Bose and his association with France', Prof Partha Ghosh spoke on Prof Bose's achievements and a video was screened to show the great man's life.

(from page 3)

highlights our activities. It was broadcasted on April 13.

Lucknow Doordarshan has made a documentary on the Centre. The documentary has been shown in two parts of 25-minutes each duration in the month of June. The documentary has extensively covered the gallery and park exhibits and also reflected on the other activities.

The centre organised hobby courses during summer vacations for school students. The two month-long course was conducted in two separate batches of one month each. 92 students participated in which 8 small projects were completed and a robot was made.

The two and half feet tall mechanical/electronic operated robot can walk forward and backward for a certain period of time, simultaneously rotating his hands and head. Besides, this robot can perform various functions viz Rain indicator, Theft alarm, Fire alarm etc. The robot is likely to be placed in museum gallery for public demonstration.

Report on environmental awareness programme : The centre actively participated in a seminar on Environment Awareness for the youths in collaboration with Vigyan Lekhak and Samvadana Samiti and Dept of Forestry, U.P. on May 15 at Kukrail forest, 30 kms away from city. Eminent scientists delivered their lectures to 20 different environmental youths clubs. The main aim of the seminar was to train youths towards environmental awareness. The seminar was inaugurated by Shri Bhagwati Singh, Ministry of Forestry, U.P. This centre also put

up its Mobile Science Exhibition Bus in the venue. A Science Demonstration Lecture "Miracle vs Science" was also conducted during this seminar by the centre.

A seminar on 'Environmental Consequences of Nuclear Holocaust' was jointly organized by Environmental Research Laboratory and Regional Science Centre, Lucknow at RSC's auditorium on May 21. About 50 students of different local schools took part in this seminar and expressed their ideas on Nuclear Holocaust. Later prizes were distributed among students.

Regional Science Centre, Tirupati held three interesting programmes in the April-June quarter. On April 30, a popular science lecture cum demonstration was delivered by Dr L Ramamurthy, Professor in Physics, Dept of Physics, S V University. On May 28, Dr E Haimavathy from Dept of Zoology, SPW College spoke on Genetics. On June 30, the travelling exhibition 'Structures : The Indian Heritage - Principles and Mechanics' was inaugurated. District Collector of Chittoor, Shri I Venkataswaralu, IAS, was the Chief Guest and the function was presided over by Director of VITM, Bangalore, Shri M Parvathinathan.

Srikrishna Science Centre, Patna organised two very innovative programmes in April and May. Between April 18-31, in collaboration with CSIR, SSC organised a training programme for ladies on 'Dehydrated Flowers and Floral Craft'. The other programme was a temporary exhibition on the first zoo photography contest, organised jointly with Patna Women's College. The on-the-spot zoo photography contest received an overwhelming response, with



Training programme on 'Dehydration and Floral Craft'

as many as 150 photographers participating. Inaugurated on May 6, the display was on for 15 days.

The Birth Anniversary of Dr S S Pillai, an eminent Mathematician of this district, was celebrated on April 5. In this connection, a series of lectures were organised at District Science Centre, Tirunelveli. Prof S Maria Arul Inbaraj delivered the Chief Guest's address and also a popular lecture on 'Number Theory'. Prof Arunachalam of VOC College, Tuticorin and Shri Nataraja Perumal, Freelance Journalist, Melagaram spoke on 'Dr S S Pillai - His Life and Works'. The same was broadcast on AIR on April 20 for 30-minutes.

A series of Medical Awareness Lectures related to Oral Health and Blood Testing camps for the public were organised in collaboration with Nehru Yuva Kendra and Getwell Hospitals, Tirunelveli on the occasion of the World Health Day on April 7. Shri R Jeyaraman, IAS, District Collector, Tirunelveli inaugurated and Dr T Munisamy, MS MCH, Dean, Tirunelveli Medical College, presided over the function. A series of medical lectures on Oral Health were delivered by Dr S Sanmugam, MD, Dr B Muthukrishnan, MDS and Dr Vinoo Jacob, FRCS of Getwell Hospitals, at District Science Centre on the same day.

At the Blood Testing Camp, a group of doctors/technicians from Getwell Hospitals conducted the procedures. An identity card was issued to all the participants bearing information like names, addresses, blood groups, RH factors, etc. More than 200 people attended the camp.

International Museum Week was celebrated by DSC, Tirunelveli with its usual class, between May 18 and 24. Each day of the week was designated a special status and observed through various thematic discourses. There were several exhibits as well - energy ball, number system, solar water heater and a poster exhibition on leprosy.

Besides the usual thematic video shows, quiz, elocution and drama programmes, various popular lectures were delivered. On Electronics day, Prof S Arumugam spoke on the subject. On Chemistry day, Engineer R Vijaya Bhaskar spoke on 'Chemistry in Industry'. On Astronomy day, eminent mathematician Prof L Janakiraman spoke on 'We and our Planets'. On Environment day, Prof Selvin Samuel spoke on 'Role of Students on Conservation of Environment'. And finally, on Health day, a popular lecture was delivered by RTO, Tirunelveli, R Shanmugam on 'Road Safety and Students' while Dr D Murugan gave a demonstration lecture on 'First Aid'.



Vacation Hobby Programme (Electronics)

The Vacation Hobby Programme on electronics, astronomy, chemistry and nature study was also held between April 15 and 24.

District Science Centre, Gulbarga and All India Radio, Gulbarga coordinated a special initiative programme to spread awareness regarding the dreaded disease of AIDS. The programme was a bilingual one (in English and in Kannada) so that a large number of people could be communicated with. The various aspects included quiz for the youth and women, poets recited poems on Aids written by them, symposium and a general question-answer session between the public and subject-experts.

On April 22, DSC, Gulbarga observed Earth Day in collaboration with Family Planning Association of India and Field Publicity Office (Govt of India), Gulbarga. C N Laxminarayan, Education Asst, DSC, Gulbarga and Smt Bhagyalakshmi, Principal, Anganwadi Training Centre, Gulbarga spoke on the theme 'Man and Earth'.

Bardhaman Science Centre organised two Computer Awareness Programmes for the school students between April 28 and May 28 and again between May 13 and June 7. Training was given on BBC computers. 43 students from six different schools attended the awareness programmes and developed individual software on different topics.

CAC programme was organised between May 14 and June 7 among twenty students of classes IX and X from five different schools. Four different CAC projects on Physics, Electronics and Life Science were completed. The investigative project "Butterfly Culture" in the



laboratory created enormous interest among the students.

Teachers' Training Programme on computer was held between June 12 and July 3. Twelve teachers from six different schools attended the training programme. Both BBC and IBM PC were used for the training purpose. But training was given mainly on BBC computers. They have developed different softwares related to the need of schools viz preparation of marksheet, class routine etc.

Two vacation hobby camps were organised from May 20 to June 5 and June 10 - 25 respectively. 22 students participated and completed six different projects based on Physical Science and Electronics.



Bardhaman Science Centre organised popular science lecture on 'Snake Bite and It's Management' on May 26. Dr C R Maity, Professor and Head, Dept of Biochemistry, Burdwan Medical College spoke about this. On June 24 Prof S K Roy, Dept of Physics, Burdwan University delivered his popular talk on 'Computer Arithmetic'.

WORLD ENVIRONMENT DAY

The different science centres under NCSM are working in the field of public awareness regarding several issues that are vital for the betterment of the country and her people. Observing World Environment Day on June 5, the science centres did create a lot of interest among the people in initiating public concern over the environmental degradation that is now threatening this earth. Here are samples of how the science centres celebrated the Day.



Costume Parade organised by BITM to observe the World Environment Day

BITM, Calcutta celebrated World Environment Day over a period of six days, in collaboration with WWF-India, Eastern Region, Friends of Trees and United Nations Youth Organisations. The various programmes included field study of insects, a costume parade programme by children, bird-watching, popular lectures, etc. On June 5 itself, BITM collaborated with Science for Society (India) in organising a seminar on 'One Earth-One Family'.

RSC, Lucknow organised an essay competition, a lecture cum slide show on 'Plant and Environment', slide shows on wild life, cactai, bonsai and other exotic plants.

RSC, Guwahati organised a sit-and-draw contest, a science quiz contest and a very topical lecture entitled 'Use of Herbs for Common Household Ailments'.

SSC, Patna organised sit and draw competition on Air Pollution, screened films on environment and held popular lecture cum demonstration on the topic 'Practical methods for Aquaculture'.

DSC, Dharampur organised a popular lecture on 'Conservation of Ecosystem', essay competition on 'Effects of Developments on Forest Human Life', screened films on wild life and forest conservation, and slide shows on 'Vanishing Forest'. They also organised an open-house quiz on 'Our Environment'. Environmental Awareness Club of South Gujarat collaborated with the Centre.

DSC, Gulbarga and Karnataka State Pollution Control Board organised several popular lectures entitled - One World, One Family;

Pollution by Chemical Industries; Threat of Global Warming.

DSC, Tirunelveli and Social Change and Development, Cheranmahadevi, stretched the one-day celebration to one long week for better implementation of ideas. The multiple programmes included sing-a-song contest, sit-and-draw, drama contest on environmental problems, extempore elocution contest and a unique mimicry contest on wild animals.



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